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NOTES ON CERATOPOGONIDAE (DIPTERA)

By J. W. S. Macfie, F.R.E.S.

Culicoides victoriae sp. n.

A dark brown species with the wings well clothed with macrotrichia and adorned in a characteristic manner.

♀. Length of wing about 1·6 mm., greatest breadth 0·7 mm.

Head very dark brown or blackish. Palpi dark brown, third segment only slightly inflated, with shallow pit: lengths of last three segments about 25, 10, and 9 units[1] respectively. Antennae darkish brown, torus very dark: segments 4–10 from oval to somewhat vasiform; 11–15 missing. *Thorax* very dark brown or blackish with a silvery pruinescence, the adornment consisting of large bands or patches, not small spots. Scutellum very dark. *Wings* (fig. 1) with characteristic adornment as shown in diagram. Macrotrichia (not shown in figure) abundant, covering greater part of wing surface, numerous in anal cell and extending nearly to base between M and Cu. Halteres with white or cream-coloured knobs. *Legs* dark brown, the knees dark but with narrow paler band on each side. T.R. about 2·4. Fourth tarsal segments cylindrical, not cordiform. *Abdomen* very dark brown. Spermathecae two, highly chitinised, sub-equal, obovate.

Australia: Victoria, Cocatoo, 19.ix.1924, 2 ♀♀, "biting man" (*G. F. Hill*).

This species resembles in some respects *C. multimaculatus* Taylor but the distal pale area in cell R5 of the wing is single, not divided into three separate pale spots. The adornment of the wings is rather closely similar to that of the European species *C. impunctatus* Goet.

The type is in the British Museum collection.

Palpomyia bicolor sp. n.

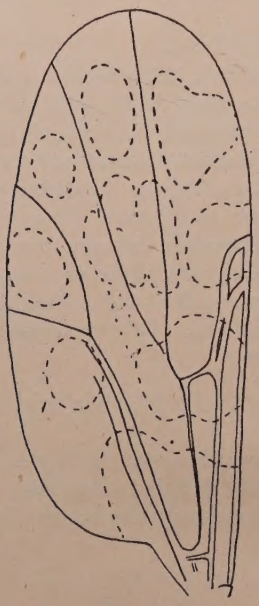
A brown species with a pale, yellowish, abdomen, colourless wings, and all the femora armed.

♀. Length of wing about 2·5 mm., greatest breadth 0·8 mm.

Head blackish. Palpi dark brown, the segments sub-cylindrical, third not inflated and without a pit: lengths of last three segments about 23, 14, and 19 units respectively, the last with a rounded end. Antennae brown, the bases of all segments paler than rest, yellowish: segments 4–10 short, sub-cylindrical, sub-equal, about 13 by 7 units; 11–14 elongate, about 35–42 by 5–6 units; 15 about 45 units long, without stylet. The combined lengths of segments 3–10, 4–10, and 11–15 about 114, 90, and 203 units respectively. *Thorax* dark brown, with a group of bristles above each wing. No thoracic tubercle. Scutellum dark brown, bearing about 5 bristles. *Wings* unadorned, colourless; without macrotrichia. Costa extending about four-fifths length of wing. Veins almost colourless. Second radial cell rather more than twice length of first. Distance separating bases of M1 and M2 about twice length of cross-vein. Fork of Cu slightly distal to level of base of M2. Halteres with pale brown knobs. *Legs* yellowish-brown with knees, both extremities of tibiae (very narrowly), and last 2–3 segments of tarsi somewhat darker. Hind legs with in addition practically whole length of femur dark brown. Posterior coxae dark brown,

[1] The unit used is approximately 3·7 μ.

others paler, yellowish-brown. Femora of fore legs only slightly broader than others; all femora armed with short, black, spines, 11–12, 2–3, and 4–5 on fore, middle, and hind legs respectively. Tibiae normal, not curved, without spur. T.R. about 2·5. Tarsi with 4th segment cordiform but not bilobed; 5th unarmed. Claws of all legs similar, equal, about half length of last tarsal segment, each with a small barb on inner side. *Abdomen* much paler than thorax, yellowish, not adorned, with only short hairs, and armed with a transverse band of chitin on each side slightly anterior to vulva. Gland rods long, pale, yellowish, on tergites 4–7. Spermathecae two (and a rudiment), highly chitinised, sparsely pitted, oval, not quite equal, about 50 μ by 45 μ: commencement of duct chitinised for about 15 μ.



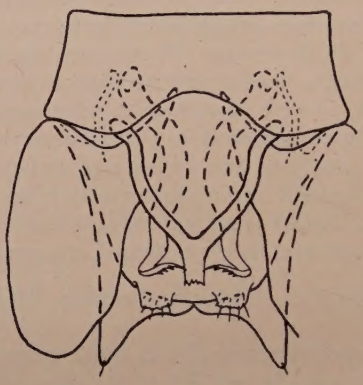


Fig. 1.—*Culicoides victoriae* sp. n., showing the arrangement of pale areas on the wing.
Fig. 2.—*Culicoides shortti* Smith & Swaminath, ventral view of hypopygium.

Nyasaland: Zomba, no other data, 1 ♀ (*H. S. Stannus*).

The type is in the British Museum collection.

The pale colour of the abdomen suffices, I think, to distinguish this species from any other *Palpomyia* recorded from Africa. In some respects the species would seem to resemble the Tunisian *P. ruficeps* Kieffer, but in that insect the tibia of the hind legs as well as the femur is dark brown.

Malayan *Culicoides*.

I have recently had the opportunity of examining a part (nearly 5000 specimens) of a very large collection of *Culicoides* procured by Dr. J. J. C. Buckley at Kuala Lumpur when feeding on cattle. No new species was discovered during this examination, but one or two points of interest regarding the commoner forms were noted and may be briefly referred to here.

Culicoides shortti Smith & Swaminath.

Of this species 551 specimens were examined. One, taken on 19.v.1937, " on cattle," was a male. The male, which has not previously been collected, resembles the female, but has less hairy wings, the macrotrichia being restricted to the distal quarter. The hypopygium in ventral view appears as shown in the diagram (fig. 2). Ninth segment with tergite notched posteriorly and with triangular lateral processes rather large; sternite rather deeply excavated in middle line posteriorly, the membrane joining it to aedeagus not spiculate. Harpes similar to those of *C. similis*, the knob-like process on stem not large and, in the single specimen examined, not visible in an antero-posterior view and so not shown in figure. Aedeagus Y-shaped, the anterior limbs forming a deep arch over the ninth sternite.

Culicoides oxystoma Kieffer.

The large number of specimens (3229) I assigned to this species showed a high degree of variability in size, in colour, and in the adornment of the wings. They may not all have belonged to a single species, but I could find no groupings into which they appeared to fall naturally, and all the males were alike and were *C. oxystoma*. Causey (1938) has described a species from Siam, *C. housei*, which resembles *C. oxystoma* except in the characters of the hypopygium. His description, based on a single male specimen, does not indicate any means by which the females of the two species might be distinguished.

Culicoides peregrinus Kieffer.

The adornment of the wings in this species is variable (439 specimens), and in some individuals resembles that of *C. sumatrae* Macfie. The pale area in the fork of Cu is usually large, but it may be small, and in a few specimens it appeared to be completely wanting; and the pale spot about the middle of cell R5 does not always clearly reach to the anterior margin of the wing. The hypopygium of *C. peregrinus* is, however, distinct from that of *C. sumatrae*, the harpes for example being notably different. In this connection I should point out that owing to a misunderstanding for which I believe I am responsible the species described and figured by Causey (1938) as *C. sumatrae* is not in fact that species.

Culicoides pungens de Meijere.

It is possible that the specimens (366, all females) I assigned to this species may really have represented two distinct species, the one smaller than the other, and with shorter antennae. If so, the males when discovered may enable them to be separated, a step which on the characters of the females alone would not be justifiable.

THE BRITISH TACHINIDAE (DIPTERA): SECOND SUPPLEMENT

By Colbran J. Wainwright, F.R.E.S.

Corrections.

Some errors having, in the course of publication, crept into my paper under the above title in 1940, *Trans. R. ent. Soc. Lond.* **90** : 411–448, with unfortunate implications, I have thought it better to call attention to them in this note.

The most serious mistake occurs on p. 428 under the heading *Microvibrissina*. Writing about *Microvibrissina muscaria* Mg. *nec* Fall., I pointed out that a new and distinctive name was required and proposed *villeneuvei* nom. n., meaning of course to make it *Microvibrissina villeneuvei*; somehow *Oswaldia* has been inserted instead of *Microvibrissina*, making nonsense. Instead of *Oswaldia villeneuvei*, therefore, read **Microvibrissina villeneuvei.**

A second mistake occurs in connection with fig. 1, on p. 417. Here the pointers subsequently added to Mr. Collin's drawing are misplaced so that the legend reads incorrectly. The correct references to the points actually indicated would be as follows:—1. Mesolobe or central clasper; 2. Paralobe or side clasper; 3. Phallosome or aedeagus; 4. Posterior paramere; 5. Anterior paramere; 6. Base of ninth sternite; 7. Apodeme of phallosome.

It should be noted that in the figures in the first supplement the names of the parameres were reversed: the one here called anterior being called posterior and vice versa. Though this is a matter of point of view yet the more frequent usage is as given above.

On p. 411 the last line but one, the correct reference should be to "*Trans. Suffolk Nat. Soc.*"

On p. 430, under *Germaria* R.-D., the Huntingfield mentioned is Huntingfield, Faversham, in Kent; Chitty's home.

On p. 432, lines 13 and 14 from bottom, Wye and Wyre have been transposed. Correctly they should be Wye Downs and Wyre Forest.

ON THE IDENTITY OF *APANTELES ALBIPENNIS* HALIDAY *NON* NEES AND OF *APANTELES ALBIPENNIS* HALIDAY OF MARSHALL (HYM. BRACON.)

By D. S. Wilkinson, F.R.E.S.
(*Imperial Institute of Entomology.*)

It gives me great pleasure to acknowledge the extremely helpful criticism and advice I have received at the hands of Mr. W. H. T. Tams, of the British Museum (Natural History), as to the best way to present the somewhat involved synonymy of the three species dealt with in this paper. Further, I am equally indebted not only to him but also to Mr. H. Stringer, also of the British Museum (Natural History), for the assistance they continue to afford me in supplying me with the correct modern nomenclature for all the Lepidopterous hosts I am always referring to in my work.

Apanteles halidaii Marsh.

Microgaster albipennis Haliday, 1834, *Ent. Mag.* **2** : 243.
Apanteles halidaii Marshall, 1885, *Trans. ent. Soc. Lond.* **1885** : 206, *nom. nov.* for *Microgaster albipennis* Haliday 1834 *non* Nees 1834 (name only). *Apanteles halidayi* [*sic*] Marshall, Thomson, 1895, *Opusc. Ent.* **20** : 2268.

♀♂. Black; front femora at apex, the four anterior tibiae at base, and the hind tibiae in about the basal fifth or sixth, red testaceous; palpi black; tibial spurs pale or white; wings white hyaline, and the setae white; costal veins, stigma, metacarp, 1st abscissa of radial, transverse cubital, and 2nd abscissa of cubital, brown, the remaining veins colourless or with some slight pigmentation; stigma uniformly opaque.

♀♂. *Head:* face and clypeus throughout with closely placed, minute punctation, even describable as exceedingly minutely rugoso-punctate; frontal orbits, frons, and vertex, exceedingly minutely punctate (degree 1); facial depressions nearer to apex of clypeus than to the eyes; posterior ocelli equidistant from each other and the eyes; flagellum of ♀ considerably shorter than combined length of thorax and abdomen, somewhat shorter than twice the length of the thorax, of ♂ somewhat shorter than combined length of thorax and abdomen together with three times the length of the head, equal to or just longer than three times the length of the thorax. *Thorax:* mesonotum regularly and closely punctate throughout (degree 2), the lines of the notauli entirely absent; disc of scutellum punctate (degree 2) along the sides, more or less entirely smooth and shining down the middle; non-excavate area of lateral faces of scutellum reaching up half-way to base of scutellum; propodeon punctate (degree 2) in each lateral two-fifths of the basal half, otherwise smooth and shining. *Wings:* metacarp equal in length to stigma. *Legs:* hind coxae basally above punctate (degree 2), otherwise above and on outer faces minutely punctate; the longer hind tibial spur three-eighths, and the shorter spur one-third, the length of the basal segment of the hind tarsus. *Abdomen* (figs. 1–3): 1st tergite in basal half excavate, medianly tumescent, in apical half turned over, the lateral two-fifths of the apical half with weak, well-separated punctation (degrees 1 and 2), the apical half medianly flattened or slightly excavate, the tergite otherwise smooth and shining; 2nd tergite with well-separated, minute punctation (degree 1); 3rd tergite in ♀ in a median basal triangle, narrowly across base, and broadly across apex, smooth, otherwise with well-separated, minute punctation, in ♂ more extensively and more closely punctate; succeeding tergites minutely punctate; 2nd–5th ventrites of ♀ with median longitudinal suture; hypopygium of ♀ broadly membranous along median line, but this area becoming increasingly chitinised

towards apex, so that the apex is chitinously acute and smooth and highly shining; ovipositor sheaths falciform, longer than hind tarsus, about equal to or just shorter than combined length of hind tibia and the two basal segments of the hind tarsus; ovipositor elongate, approaching three times the length of the hind tibia, about equal to combined length of the two basal segments of the hind tarsus together with twice the hind tibia.

Length, 2·0–2·5 mm.

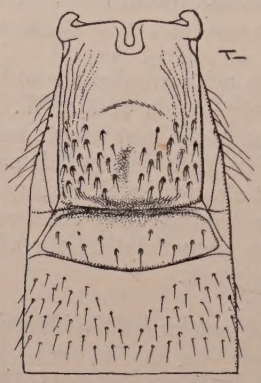


FIG. 1.—*Apanteles halidaii* Marsh., basal tergites, ♀. × 80.

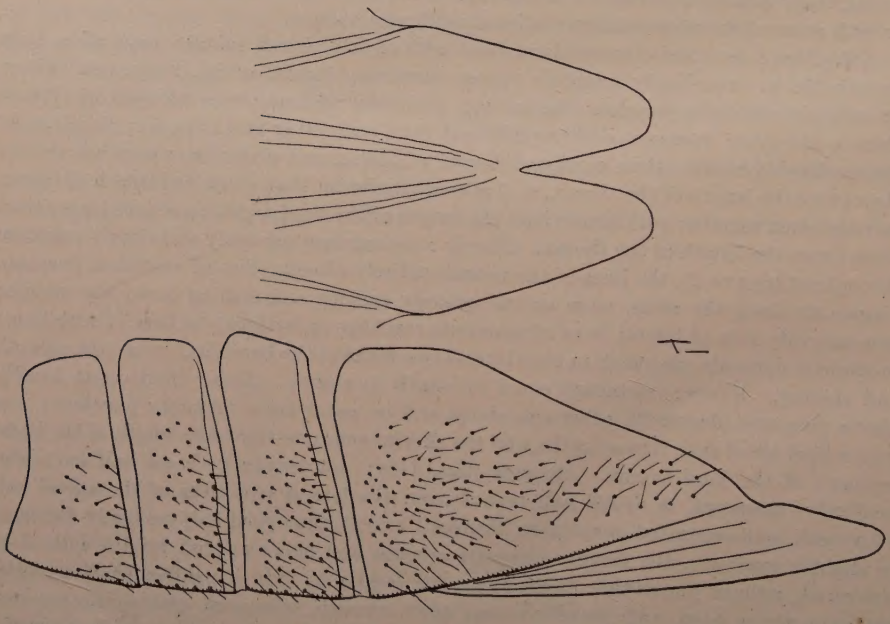


FIG. 2.—*Apanteles halidaii* Marsh., apical ventrites, side view, ♀, × 80; and apex of hypopygium, opened out, dorsal view, further much enlarged, to show apical slit.

Redescribed from the following material:—British Museum: Entomological Society Collection, 1 ♀, no. 18. General Accessions, Sweden, Degaberga, 33 ♀♀, 10 ♂♂, 10, 12, 13, and 14.vii.1938 (*D.M.S.P.* & *J.F.P.*).

Further material examined:—Entomologiska Museet, Lund: Thomson Collection, 1 ♀ (neotype), Ringsjö, det. Thomson as *halidaii* Marsh.

Type of *albipennis* Hal. lost: *neotype* (*halidaii* Marsh.) in the Thomson Collection, Entomologiska Museet, Lund.

Host. The original description of the species by Haliday, under the name *albipennis*, is without host record, as is also the description of the second reviser, Thomson, whom I am accepting; and all the material before me from which I have made my redescription is without host record. Perkins' material from Sweden, so I am informed by him, was swept off Umbelliferae alongside a road on sandy hills strongly covered with turf and with a rich mixed flora.

In the literature there are a few host records for this species, as follows. The *Apanteles* material upon which these records were based is known to me; and there is no question but that these records cannot be accepted for what is here understood to be *halidaii*. Marshall (1885), who wrote on material under the name *halidaii*, and whose material is referable to two other quite distinct species, recorded the three Tineids *Ptocheuusa*, now *Aristotelia*, *inopella* Zell., *Coleophora*, now *Goniodoma*, *limoniella* Staint., which was known to Bridgman as *G. auroguttella* Staint., and *Gracilaria*, now *Parectopa*, *ononidis* Zell.; and Bignell (1901) has given the Tortricid *Hedya*, now *Gypsonoma*, *neglectana* Dup.

Cocoons unknown.

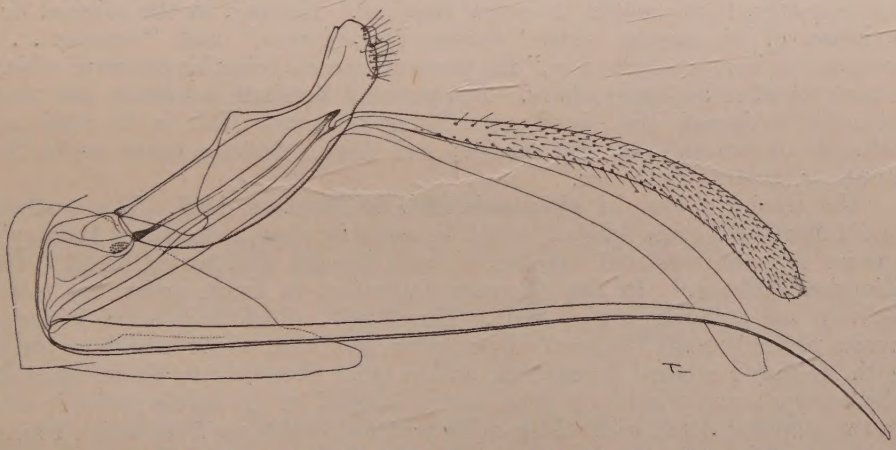


Fig. 3.—*Apanteles halidaii* Marsh., genitalia, side view, ♀. × 54.

Commentary. Haliday originally described his *albipennis* from an unstated number of specimens of both sexes in the collection of the Entomological Society of London, "(*Mus. Soc. Ent.*)", the material having been captured, the habitat being given as "*in arvis autumno minus frequens.*" In the British Museum, amongst the remains of the material of the Haliday Collection presented by the Entomological Society, there is no material labelled with this name. The type is lost, therefore.

The first reviser of *albipennis* Haliday is Marshall 1885. This author, under the new name of *halidaii* that he proposed, since the name *Microgaster albipennis* is a primary homonym of *Microgaster albipennis* Nees 1830, redescribed Haliday's species from "two females bred by W. H. B. Fletcher,

of Worthing, from *Ptocheuusa inopella*, Zell.," stating that their stigma was pale in the middle, and from " two males and five females reared by the same at the end of July from *Coleophora limoniella*, Staint. (cf. E.M.M., 1884, p. 60); and a pair from *Gracilaria ononidis*, Zell.," stating that their stigma was darker, with a pale basal spot. In the Marshall Collection, standing under the name *halidaii*, were two specimens, both females. One is labelled *halidaii* in the usual manner for the Marshall Collection and with a red type label affixed I do not know by whom, but without any indication as to its source. This specimen agrees perfectly and in the minutest detail with a series in the Bridgman Collection numbered 581 on a blue label, Bridgman's register recording that this series was " ex *Gelechia inopella*—Worthing—end of Aug. 1885—W. H. B. Fletcher." The other Marshall specimen is labelled " *Goniodoma auroguttella*—E.M.M. 1884 ", and agrees perfectly and in the minutest detail with three specimens in the Bridgman Collection numbered 960 on a blue label, Bridgman's register recording that this series was " ex *Goniodoma auroguttella*—W. H. B. Fletcher," but with the date, unfortunately, 1886. Further, both these two specimens of Marshall's agree perfectly with his description of *halidaii*, even to the differences in the colour of their stigmas; and the reason why he recorded the host of the second series to be *Coleophora limoniella*, and not *Goniodoma auroguttella*, is explained in a paper by Stainton (1884), which is the paper in the *Entomologist's Monthly Magazine* to which reference is made. These two specimens, therefore, are clearly to be accepted as part of the material from which Marshall drew up his redescription. Neither of them, however, can be made to agree with Haliday's description, and, consequently, I am unable to accept Marshall. Haliday, in the original description of his species, says " stigma flavo-piceum," and " aculeus . . . arcuatus ut in praecedente fere," the previous species being his *equestris*, which I have found to be *falcatus* Nees. The material Marshall had before him that he called *albipennis* Hal., besides not being *albipennis* Hal., is, in addition, referable to two quite distinct species; and these I describe below under the names *britannicus* and *victor*.

The second reviser of *albipennis* Hal. is Thomson 1895. This author, under Marshall's name *halidaii*, which he spells *halidayi*, redescribed Haliday's species from an unstated number of both females and males found " vid Ringsjön i Skåne." In the Thomson Collection in Lund under the name *halidayi* are a female and a male. The female, which is labelled Ringsjö, agrees perfectly with Thomson's description, and also, which is as important, with Haliday's original description, and is quite obviously to be accepted as the neotype; and this I have done, and so labelled it. It agrees perfectly and in the minutest detail with all the other material before me from which I have redescribed the species.

Since it was unlabelled I could not accept as the type of the species the single female referred to above from the Haliday Collection, even though the species was originally described by Haliday from this collection.

In Marshall's key (1888) this species runs apparently only to *sicarius* Marsh., which is of course distinct, if only on the shape of their ovipositors. In Muesebeck's key (1920) of the nearctic species, which must be considered, *halidaii* runs in the first section (couplets 2–51) to couplet 47, but will not compare with the two species therein; and in the second section (couplets 52 *et seq.*) it can run only to *femur-nigrum* Prov., which is altogether different. In my own key (1932, *Trans. ent. Soc. Lond.* **80**, and as subsequently emended and enlarged either in this journal or in the *Bulletin of Entomological Research*) *halidaii* runs in Group U to couplet 120b, which should be altered as follows :—

120b. Metacarp equal in length to stigma; distance from apex of metacarp to apex of obsolete apical abscissa of radial longer than 1st abscissa of radial . . . . . 120b/1.

Metacarp longer than stigma; distance from apex of metacarp to apex of obsolete apical abscissa of radial shorter than 1st abscissa of radial . . . . . 120c.

120b/1. Ovipositor sheaths strongly falciform; Europe . . . *halidaii* Marsh.

Ovipositor sheaths not so describable; Europe . . . *sicarius* Marsh.

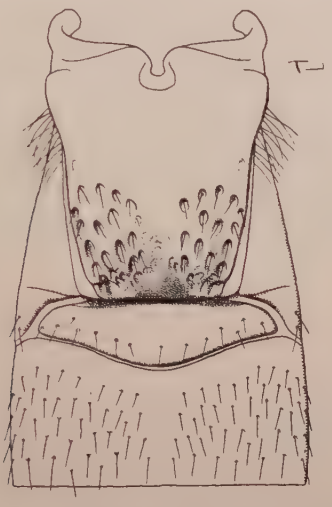


FIG. 4.—*Apanteles britannicus* sp. n., basal tergites, ♀. × 80.

Apanteles britannicus sp. n.

Apanteles halidaii, Marshall, 1885, *Trans. ent. Soc. Lond.* **1885** : 206 (*partim, ex err.*); 1888, *Spécies Hym. d'Eur.* **4** : 463–464 (*partim, ex err.*).

♀. Black; front femora in apical third or half, front tibiae basally and throughout inner margin, four posterior tibiae basally, red testaceous; front tarsi darkened and the feet black; palpi more or less pale, with the basal segments black; tibial spurs white; wings white hyaline and the setae white; costal veins pale red testaceous; stigma discally hyaline, its margins, which are narrowly pigmented, brown or dark brown; metacarp dark brown; 1st abscissa of radial, transverse cubital, and 2nd abscissa of cubital, very weakly pigmented, the remaining veins entirely colourless.

♂. Black; apex of front femora and extreme base of all tibiae red testaceous or at least with some indication of red testaceous colouring; palpi more or less pale, with the basal segments black; tibial spurs white ; wings white hyaline and the setae white; stigma discally hyaline and its margins narrowly pigmented; upper margin of stigma weakly red testaceous or brown, as are often the lower margins, the inner lower margin more commonly brown or dark brown and the outer lower margin dark brown; metacarp dark brown; veins entirely colourless, the costal veins, 1st abscissa of radial, transverse cubital, and 2nd abscissa of cubital, occasionally with some slight pigmentation.

♀♂. *Head :* face and clypeus throughout, and frontal orbits, minutely punctate (degrees 2 and 1); frons and vertex exceedingly minutely punctate (degree 1); facial depressions nearer to apex of clypeus than to the eyes; posterior ocelli nearer to the eyes than to

each other; flagellum of ♀ considerably shorter than combined length of thorax and abdomen, equal to or somewhat shorter than twice the length of the thorax, of ♂ sometimes rather longer than and sometimes rather shorter than combined length of thorax and abdomen together with three times the length of the head, considerably shorter than three times the length of the thorax. *Thorax:* mesonotum regularly and closely punctate throughout (degree 2), the lines of the notauli entirely absent; disc of scutellum with some closely placed punctures down the sides and in apex (degrees 1 and 2), otherwise throughout with widely separated punctation (degree 2); non-excavate area of lateral faces of scutellum reaching up beyond half-way to base of scutellum; propodeon entirely smooth and highly shining throughout medial one-fifth of basal half (where it is slightly raised) and narrowly in medial three-fifths of extreme base, punctate (degree 2) in each lateral two-fifths of basal half, with short carinulae radiating from the median apical lunule, indefinitely aciculated in each lateral third of the apical half, and strongly aciculated (at least in ♀) throughout the unusually strongly produced apical angles. *Wings:* metacarp longer than stigma.

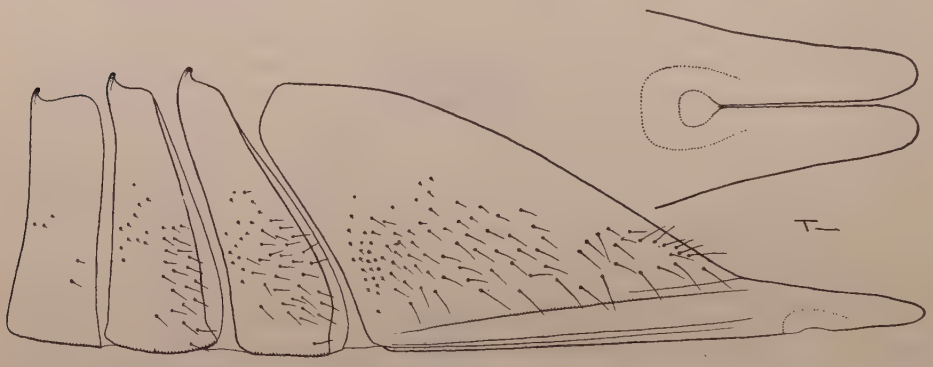


Fig. 5.—*Apanteles britannicus* sp. n., apical ventrites, side view, ♀, × 64; and apex of hypopygium, opened out, dorsal view, further much enlarged, to show apical slit.

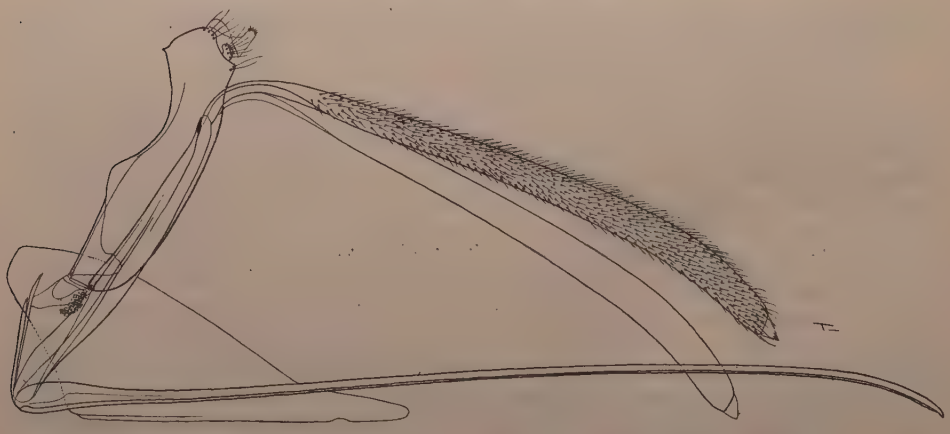


Fig. 6.—*Apanteles britannicus* sp. n., genitalia, side view, ♀. × 40.

Legs: hind coxae unusually thin, throughout basal half above strongly punctate (degree 4), otherwise above and on outer faces minutely punctate; hind tibial spurs equal, two-fifths

the length of the basal segment of the hind tarsus. *Abdomen* (figs. 4–6): 1st tergite in basal half excavate, medianly weakly tumescent, in apical half turned over, in apical third or two-fifths with scattered, often quite strong punctures (degree 3 or even 4) in the lateral thirds or even more broadly, narrowly immediately in front of the not always clearly visible apical lunule rugose or rugoso-punctate, otherwise entirely smooth and highly shining, the upper layer of the tergite more usually contracting at apex more strongly than the lower layer with the result that the apical angles of the tergite and commonly also large portions of the apical margin are strongly depressed, in the ♂ punctation and sculpture very much weaker than in ♀; 2nd tergite in ♀ minutely punctate in about apical half, in ♂ more extensively so; 3rd tergite in ♀ smooth broadly across base and membranous apex and down the middle, otherwise with well-separated minute punctation, in ♂ much more extensively punctate; succeeding tergites in ♀ very similar to the 3rd, in ♂ minutely punctate; 2nd–5th ventrites of ♀ with median longitudinal suture; hypopygium of ♀ broadly membranous along median line, and its apex acute but hardly describable as membranously so; ovipositor sheaths approaching combined length of hind tibia and hind tarsus, a little longer than combined length of hind tibia and the four basal segments of the hind tarsus, the ovipositor elongate, longer than three times the length of the hind tibia, shorter than combined length of basal segment of hind tarsus together with three times the hind tibia.

Length: ♀, 2·5–3·0 mm.; ♂, 2·25–2·5 mm.

Described from the following material:—British Museum: Marshall Collection, 1 ♀, labelled "type" of *halidaii* Marsh. Norwich Castle Museum: Bridgman Collection, 2 ♀♀, 4 ♂♂, Worthing, viii.1895, ser. no. 581, 1 ♀, Slindon, viii.1887, ser. no. 895 (*W. H. B. Fletcher*). Essex Field Club: Fitch Collection, 1 ♀, det. as *halidaii* Marsh. D. S. Wilkinson's Collection: England, Sussex, Shoreham, 19 ♀♀ (one the *type*), 14 ♂♂, coll. 3.viii.1939, em. 1.ix.1939, 33 ♀♀, 40 ♂♂, coll. 25.vii.1940, em. 19.viii.1940 (*R. L. E. Ford*).

Type deposited in the British Museum.

Host. Of the material from which I have described this *Apanteles*, Ford's two series were bred by him as solitary parasites of the Tineid *Aristotelia inopella* Zell., a species that was known to Marshall under the generic name *Ptocheuusa*; and the Marshall, Bridgman, and Fitch specimens are recorded also from this host. The host larva feeds in the seed-heads of Fleabane, *Inula dysenterica* L.

Cocoons solitary, white, somewhat papyraceous.

Commentary. This species, and also *A. victor* Wilkn. sp. n., was considered by Marshall to be *albipennis* Haliday *non* Nees, and was included by him (1885, 1888) in his redescription of that species under his new name of *halidaii*. It is not *albipennis* Hal., however, as I have also shown in my commentary on the species that is now to be known under Marshall's name of *halidaii*. Haliday, in the original description of his *albipennis*, says "stigma flavo-piceum," and "aculeus . . . arcuatus ut in praecedente fere," the previous species being his *equestris*, which I have found to be *falcatus* Nees. Nor is *britannicus* referable, I am convinced, to any other described palaearctic species, by far the greater majority of the types of which are known to me and have been studied by me for the monograph of this genus I have in preparation. In Muesebeck's key (1920) of the nearctic species, which must be considered, *britannicus* will run in the first section (couplets 2–51) only, so far as I can determine, to couplet 47, but will not compare with the two species therein; and in the second section (couplets 52 *et seq.*) it runs easily to couplet 78, but again will not compare with the two species therein. In my own key (1932, *Trans. ent. Soc. Lond.* **80**, and

as subsequently emended and enlarged either in this journal or in the *Bulletin of Entomological Research*) *britannicus* runs in Group U to couplet 117, where I have already included it under the incorrect name *halidaii* Marsh. This couplet should be altered as follows :—

117. Propodeon medially roundly excavated; 1st abscissa of radial longer than transverse cubital; 1st tergite almost square; India . . . . . *leptothecus* Cam.
Propodeon medially noticeably convex; 1st abscissa of radial not longer than transverse cubital; 1st tergite contracting apicad; England . . . . . *britannicus* Wilkn.

I cannot refrain from drawing attention to some contradictory statements with regard to this species in Marshall's key (1888). In the first part of couplet of 34 he quite rightly describes the stigma of what I am here calling *britannicus* as " testacé très pâle, bordé de brun "; and yet this couplet, through couplets 33, 32, 21, 18, and 16, is derived not from the *second* part, but from the *first* part of couplet 13 where the stigma is described as " brun, de teinte plus ou moins foncée."

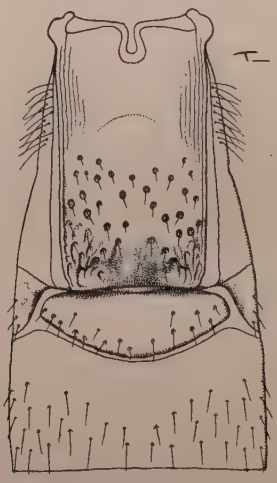


Fig. 7.—*Apanteles victor* sp. n., basal tergites, ♀. × 80.

Apanteles victor sp. n.

Apanteles halidaii, Marshall, 1885, *Trans. ent. Soc. Lond.* **1885** : 206 (*partim, ex err.*); 1888, *Spécies Hym. d'Eur.* **4** : 463–464 (*partim, ex err.*).

♀. Black; front femora at apex, front tibiae in basal third or even half, middle tibiae in basal fourth, and hind tibiae apparently in at least basal third, red testaceous; palpi darkened; tibial spurs pale; wings hyaline or very faintly infumated, the setae of fore-wing coloured (at least in apical half of wing), of hind-wing colourless; costal veins basally to some extent testaceous; costal veins apically, stigma, and metacarp, brown; 1st abscissa of radial, transverse cubital, and 2nd abscissa of cubital, pale brown, the remaining veins entirely colourless; stigma either uniformly opaque, or somewhat paler at base, or with a pale cloud at base.

♂. Black; front femora at extreme apex, the four anterior tibiae at base, and hind tibiae in basal fourth or third, red testaceous; palpi more usually darkened; tibial spurs pale; wings hyaline, and the setae white; wings otherwise as in ♀.

♀♂. *Head :* face, clypeus, and vertex, throughout with closely placed minute punctation (degrees 2 and 1); frons and frontal orbits more sparsely punctate; facial depressions nearer to apex of clypeus than to the eyes; posterior ocelli equidistant from each other and the eyes, or just nearer to each other; flagellum of ♀ considerably shorter than combined length of thorax and abdomen, about equal to or rather longer than twice the length of the thorax, of ♂ sometimes longer than and sometimes rather shorter than combined length of thorax and abdomen together with three times the length of the head, approaching three times the length of the thorax, about equal to three times the length of the abdomen.

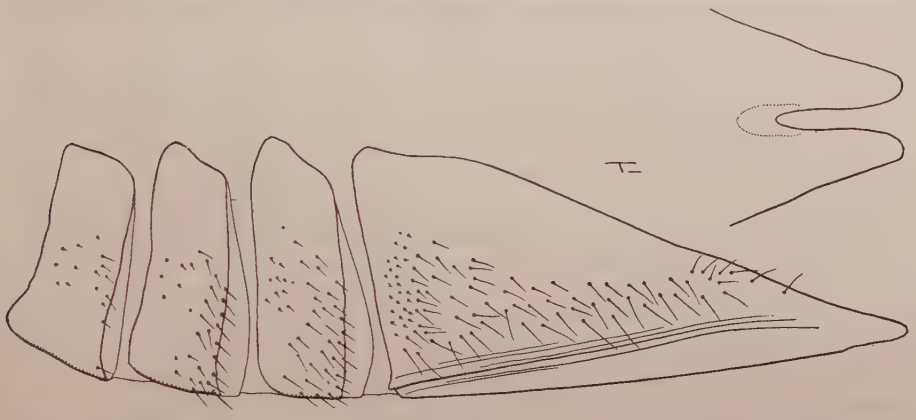


Fig. 8.—*Apanteles victor* sp. n., apical ventrites, side view, ♀, × 64; and apex of hypopygium, opened out, dorsal view, further much enlarged, to show apical slit.

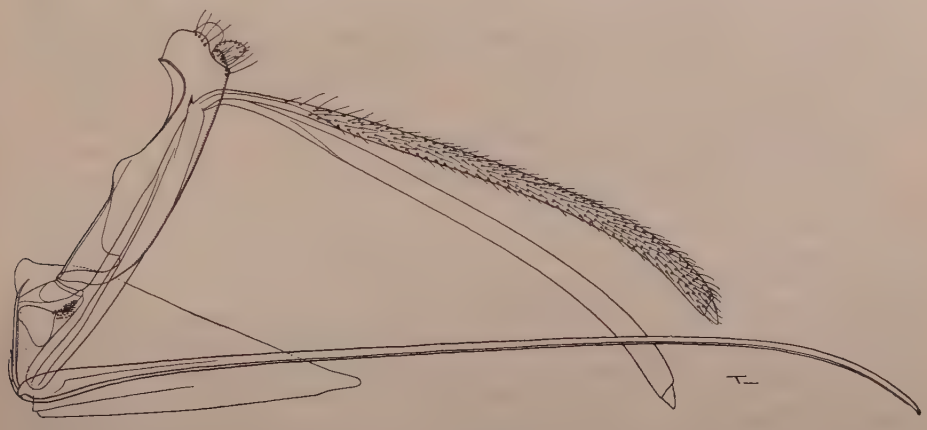


Fig. 9.—*Apanteles victor* sp. n., genitalia side view, ♀. × 40.

Thorax : mesonotum throughout with closely placed punctation (degrees 4 and 3), narrowly across extreme apex entirely smooth save for some exceedingly minute punctures; disc of scutellum minutely punctate (degrees 1 and 2), closely so along the sides, widely or even sparsely so medially; non-excavate area of lateral faces of scutellum reaching up beyond or somewhat beyond half-way to base of scutellum; propodeon in basal half minutely

punctate and aciculate (degrees 1–2 in ♂, 2–3 in ♀), often with a very weak, short, median longitudinal carinula at base, in apical half with a slightly impressed, commonly ill-defined areola delimitated by various short carinulae rising from the median apical lunule, aciculated in each lateral third of apical half, more weakly sculptured in ♂ than in ♀. *Wings:* metacarp just longer than stigma; basal half of 1st abscissa of cubital not straight and not or hardly received into basal vein, but curved upwards so that upper portion of basal vein is wanting or at most punctiform. *Legs:* hind coxae basally above with a large area strongly punctate (degrees 3 and 4), apically above and on outer faces minutely punctate (degree 1); hind tibial spurs equal, between one-third and two-fifths the length of the basal segment of the hind tarsus. *Abdomen* (figs. 7–9): 1st tergite basally excavate, medially at base of about apical two-thirds tumescent, about apical two-thirds turned over, narrowly along margins of basal third longitudinally striate, in but not throughout apical half with well or even widely separated punctation (degree 3), otherwise entirely smooth, and the apical angles depressed, the tergite in ♀ virtually rectangular, in ♂ regularly somewhat contracting apicad; 2nd tergite in ♀ across apex or in apical third, and in ♂ in apical third or half, minutely punctate (degree 2), otherwise smooth; 3rd tergite smooth narrowly across apex and very broadly across base, or even throughout basal half, otherwise minutely punctate; succeeding tergites smooth broadly across base and membranous apex, otherwise minutely punctate [1]; 2nd–5th ventrites of ♀ with median longitudinal suture; hypopygium of ♀ broadly membranous along the median line, and its apex membranously acute; ovipositor sheaths a little shorter than combined length of hind tibia and hind tarsus, a little longer than combined length of hind tibia and the four basal segments of the hind tarsus, the ovipositor elongate, longer than three times the length of the hind tibia, shorter than combined length of basal segment of hind tarsus together with three times the hind tibia, longer than combined length of femur, tibia, and tarsus, of the hind leg.

Length: ♀, 2·5–2·9 mm.; ♂, 2·25–2·7 mm.

Described from the following material:—British Museum: Marshall Collection, 1 ♀, det. Marshall as *halidaii* Marsh. Norwich Castle Museum: Bridgman Collection, 3 ♀♀, Yarmouth, Isle of Wight, 1886, ser. no. 960 (*W. H. B. Fletcher*). D. S. Wilkinson's Collection: England, Yar Estuary, Isle of Wight, 49 ♀♀, 21 ♂♂, coll. ix.1939, em. 12–29.viii.1940 (*R. L. E. Ford*), 101 ♀♀ (one the *type*), 37 ♂♂, coll. 10.v.1940, em. 6–27.viii.1940 (*D. S. Wilkinson* & *R. L. E. Ford*).

Type deposited in the British Museum.

Host. Of the material from which I have described this *Apanteles*, the two series from the Isle of Wight dated 1940 were bred by Ford as solitary parasites of the Tineid *Goniodoma limoniella* Staint., a species that was known to Marshall under the generic name *Coleophora*, and to Bridgman as *G. auroguttella* Staint.; and the Marshall and Bridgman specimens are recorded also from this host. The host larva feeds on the flowers, and hibernates in the stems, of the Sea Lavender, *Limonium vulgare* Miller; and it is clear from the data given above that the parasite is single brooded and requires no alternative host.

Cocoons. Pupation takes place in the host's puparium inside the stem of the Sea Lavender, and the cocoons, which are made of white silk, are of very thin, more or less transparent, papyraceous texture. More than one cocoon is commonly to be found in a single stem, and, further, it would seem that two or more cocoons are apparently sometimes spun together to form an elongate chamber.

Commentary. This species, and also *A. britannicus* Wilkn. sp. n., was con-

[1] In specimens whose abdomen has been distended it may be seen that at least the basal half of each succeeding tergite is entirely smooth.

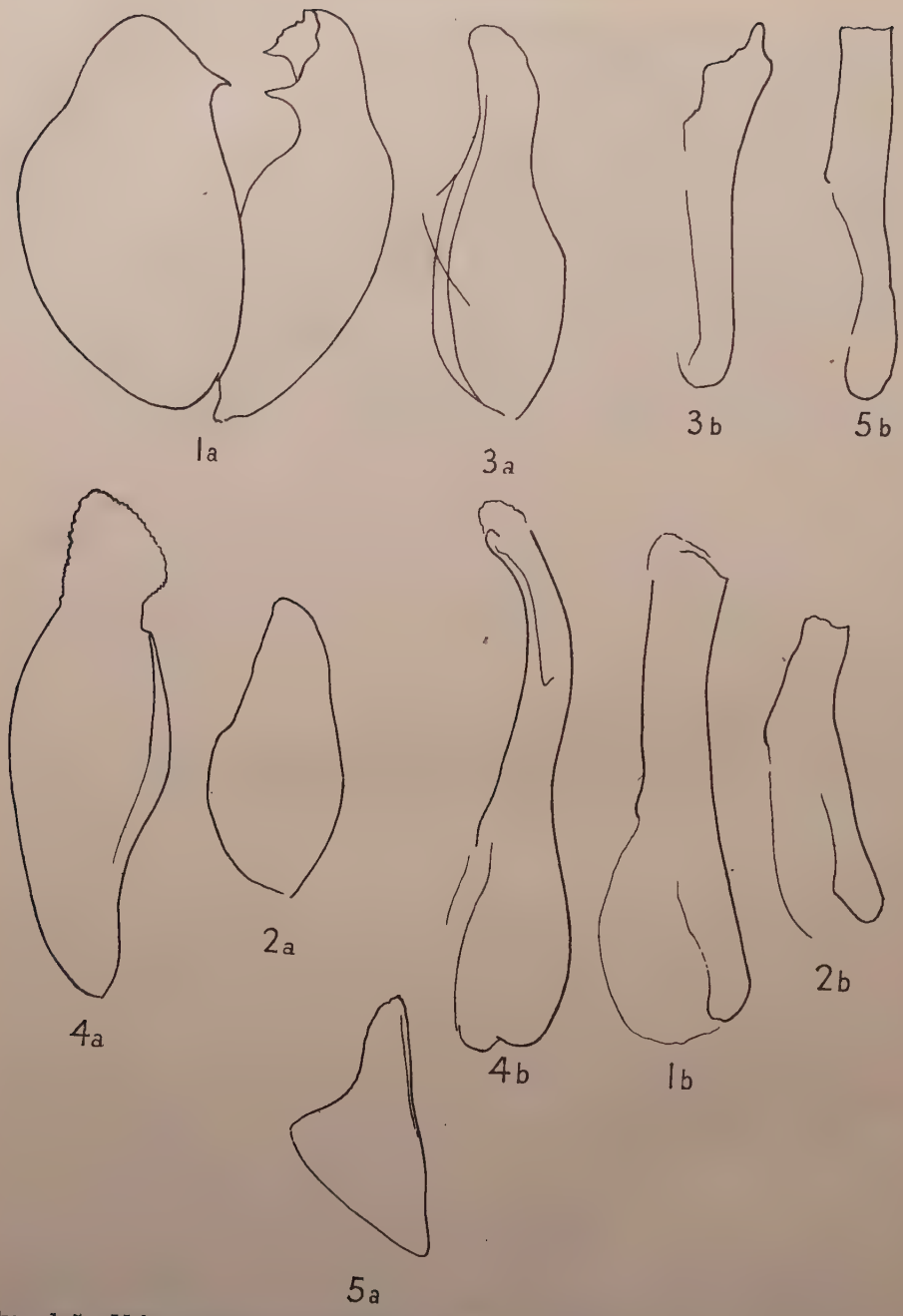
sidered by Marshall to be *albipennis* Haliday *non* Nees, and was included by him (1885, 1888) in his redescription of that species under his new name of *halidaii*. It is not *albipennis* Hal., however, as I have also shown in my commentary on the species, that is now to be known under Marshall's name of *halidaii*. Haliday, in the original description of his *albipennis*, says " stigma flavo-piceum," and " aculeus . . . arcuatus ut in praecedente fere," the previous species being his *equestris*, which I have found to be *falcatus* Nees. Nor is *victor* referable, I am convinced, to any other described palaearctic species. In Muesebeck's key (1920) of the nearctic species, which must be considered, *victor* will run in the first section (couplets 2–51) only, so far as I can determine, to couplet 47, but will not compare with the two species therein; and in the second section (couplets 52 *et seq.*) it will not run at all satisfactorily, but can be made to run to couplet 112, but no further. In my own key (1932, *Trans. ent. Soc. Lond.* **80**, and as subsequently emended and enlarged either in this journal or in the *Bulletin of Entomological Research*) *victor* runs in Group U to couplet 120c, which, together with couplet 120d, should be altered as follows :—

120c. Four anterior coxae largely red testaceous; New Zealand *carposinae* Wilkn.
Four anterior coxae always entirely black . . . . . 120d.
120d. Wings with basal half of 1st abscissa of cubital curved upwards so that upper portion of basal vein is wanting or at most punctiform; England . . . . . *victor* Wilkn.
Wings not so describable . . . . . 120e.
120e. [as existing 120d].

REVISIONAL NOTES ON THE GENUS *CATAPAECILMA* BTLR. (LEPID. RHOP.)

By A. Steven Corbet, D.Sc., Ph.D., F.I.C.
British Museum (Natural History).

An important paper by Fruhstorfer (1915, *Z. wiss. InsektBiol.* **11**: 220–222), in which it is shown that *Catapaecilma elegans* auctt. comprises two distinct species which can be separated readily on facies, male genitalia and size, was overlooked entirely by subsequent authors. Fruhstorfer's conclusions regarding *C. elegans* (H. Drc.) and *C. major* H. H. Drc. have been confirmed, but it appears that the Philippine form *gracilis* Semp., although closely allied to *C. elegans*, is sufficiently distinct to merit specific rank.



FIGS. 1–5.—Male clasper (a) and aedeagus (b) of: (1) *Catapaecilma major sedina* Fruh., East Coast of Sumatra, Bila; (2) *C. elegans chaline* Fruh., Sumatra; (3) *C. gracilis* Semp., Mindanao; (4) *C. subochrea subochrea* El., Burma, Kalaw; (5) *C. delicatum* Nic., Sikkim. In each case, the clasper is drawn 1·5 times the magnification of the corresponding aedeagus, and all aedeagi are of the same magnification. Both claspers are shown in fig. 1a.

Key for the separation of the *Catapaecilma* species.

1(10). Un with more or less regular stripes and ornamented with metallic green strigae.
2 (3). UnF median band Y-shaped . . . . . *major.*
3. UnF median band straight.
4 (7). UnF without a dark post-discal band, extending from costa to vein 4.
5 (6). UnH green post-discal stripe in space 6 in line with the stripes in spaces 7 and 5 . . . . . *elegans.*
6. UnH green post-discal stripe in space 6 moved inwards . . *gracilis.*
7. UnF with a dark post-discal band, conjoined in *subochrea* but comprising separate black spots in *bubases*, extending from costa to vein 4.
8 (9). UnF median band oblique, extending from mid-costa to vein 1 *subochrea.*
9. UnF median band more or less parallel with the termen, comprising black spots from vein 1 to vein 4, not continuous with the dark cell-end stripe . . . . . *bubases.*
10. Un densely striated with black with a few metallic green strigae *delicatum.*

Catapaecilma major H. H. Drc.

Catapoecilma [sic] *major* H. H. Druce, 1895, *Proc. zool. Soc. Lond.* **1895** : 612; ♂, Sikkim.

This variable species extends from Ceylon to Sikkim, Formosa and Malaysia, and shows some seasonal differentiation, the dry-season form having the underside whiter and with fainter markings. The subspecies *myostina* Fruh. (Ceylon), and *callone* Fruh. (South India), are pale beneath, the latter having the fore-wing dorsum whiter, with the median band rarely extending below vein 2 : *anais* Fruh. (Assam), differs from the nominotypical form in the narrower black hind-wing border in the female. The Formosan race *moltrechti* (Wilem.) is not very different from *anais*. The Malaysian races are duller above in the male. The subspecies *emas* Fruh. (= *tyana* Fruh.) (Malay Peninsula) is figured in Distant, *Rhop. Malay.*, pl. xxii, fig. 17 ♂; *sedina* Fruh. (North-east Sumatra), figured in Seitz, *Grossschmett. Erde*, **9**, pl. 158 b 4 ♂ und., has the fore-wing beneath basally dusted with ferruginous while the female is much darker above, and *sophonias* Fruh. (West Java) is figured in Seitz, pl. 158 b 5 ♀, 6 ♂ as "*deliciosa*", and in Piepers & Snellen, *Rhop. Java, Lyc.*, pl. xxvii, fig. 166 ♂. A single female in the British Museum from Borneo (Lawas, iii.1896, Crowley Bequest) resembles that sex from Malaya.

Catapaecilma major albicans subsp. n.

♂♀. Nearest to the Assam subspecies *anais* Fruh., but the underside is whiter, particularly on the fore-wing dorsum, and there is a prominent whitish submarginal area in space 3 on the fore-wing. On the fore-wing is a dark, submarginal patch in spaces 1b and 2, and a dark, oblique, diffuse band extends from the outer half of the costal margin to the dorsum of the hind-wing. In the female, the upperside is brighter and clearer blue than in *anais*. Length of fore-wing ♂ = 16 mm., ♀ = 15 mm.

Burma, Karen Hills, v.1926 (*Brigadier W. H. Evans*). In British Museum.

Catapaecilma elegans (H. Drc.).

Hypochrysops elegans H. Druce, 1873, *Proc. zool. Soc. Lond.* **1873** : 350, pl. xxxii, fig. 12 ♀ und.; ♀, Borneo.

In this species, which is smaller than *C. major*, the male upperside is deeper

purple with the fore-wing black border a thread. The Malayan race *zephyria* Fruh.[1] is known only from Staudinger's figure, which shows the underside paler than in *cheline* Fruh. (North-east Sumatra). The Niasese race *niasana* Fruh. is characterised by the more ferruginous underside. Bornean females are darker than in the other races. The nominotypical form is figured in Seitz, pl. 158 b 3 ♀.

Catapaecilma gracilis Semp.

Catapaecilma gracilis Semper, 1890, *Schmett. Philipp.* **1**:217, pl. xxxiii, fig. 19 ♂ und., 20 ♀; ♂, East Mindanao, ♀, Central Luzon.

In the British Museum only from Mindanao and Luzon. Figured in Seitz, pl. 158 b 1 ♀ *nec* "♂", 2 ♂.

Catapaecilma subochrea El.

Catapoecilma [sic] *subochrea* Elwes, 1892, *Proc. zool. Soc. Lond.* **1892** : 640, pl. xliv, fig. 10 ♂; ♂, Burma, Karen Hills.

In the British Museum from Assam to the Dawnas : the very rare race from the Malay Peninsula is *evansi* Pend.

Catapaecilma bubases (Hew.).

Hypochrysops bubases Hewitson, 1875, *Ent. mon. Mag.* **12** : 38; ♀, Malacca.

Only known from Hewitson's type (figured in Distant, *Rhop. Malay.*, pl. xliv, fig. 26), and a female recorded from Borneo (Quop) by Moulton (1912, *J. Straits Br. R. asiat. Soc.* **60** : 161).

Catapaecilma delicatum Nic.

Catapoecilma [sic] *delicatum* de Nicéville, 1887, *Proc. zool. Soc. Lond.* **1887** : 455; ♂♀, Sikkim.

This species gives the impression of a strongly differentiated race of *C. bubases*, although the fact that it is known only from Sikkim militates against this view. The matter can be decided only when males of *C. bubases* are available for dissection.

The types of all the *Catapaecilma* species mentioned in this paper are in the British Museum with the exception of *myostina* Fruh., *callone* Fruh., *emas* Fruh., *tyana* Fruh., *zephyria* Fruh., *gracilis* Semp. and *delicatum* Nic. The types of both *emas* and *tyana* are the male specimen figured by Distant.

[1] *Catapoecilma* [sic] *zephyria* Fruhstorfer, 1915, *Z. wiss. InsektBiol.* **11** : 221; ♀, Malay Peninsula. Figured in Staudinger, 1888, *Exot. Schmett.* **1** : 282, pl. 96, ♀ *nec* "♂".

ON THE EUROPEAN GENERA OF THE FENUSINI AND TWO UNRECOGNISED BRITISH SPECIES (HYMENOPTERA SYMPHYTA)

By Robert B. Benson, M.A., F.R.E.S.
(*British Museum (Natural History)*).

In 1936 I published a key to the European genera of the Fenusini. Since and as a result of this Dr. R. Malaise kindly presented to the British Museum specimens of *Blennocampa recta* C. G. Thomson, which proved to belong to *Hinatara* Benson, as I had surmised, and Dr. M. Hering likewise presented specimens of the recently described *Syringophilus hommi* Hering which I had been unable to include in my key. I am also indebted to Prof. G. D. Hale Carpenter for the loan of parts of the Morice and Perkins collection from the Hope Department, Oxford.

New definitions of *Scolioneura* Konow and *Messa* Leach (= *Fenusella* Enslin) with the separation of *M. pygmaea* Klug and *M. thomsoni* Konow into a distinct genus, identified as the nearctic *Profenusa* MacGillivray, bring together, in an obviously more natural arrangement, species of similar facies.

As Ross says (1937 : 69) the genera of " this group have been very poorly understood in North American literature."

Farther afield, for example in Asia, where a rich fauna is to be expected, the species have scarcely been studied at all.

From South America there has been a species described as " *Scolioneura surosa* Konow " (Chile) and the late Dr. F. W. Edwards brought back a specimen of an undescribed species of *Profenusa* from the Argentine in 1926. *Entodecta impropria* Malaise of eastern Asia may also belong to *Profenusa* but certainly not to *Metallus* (*Entodecta*) as defined here.

It will be noticed that in quoting the original name of the Klug species representing the genotypes of four of the genera dealt with here, I have omitted the generic name which he wrote in brackets following the " Tenthredo." The meaning of these names in brackets is made clear by Klug (p. 77). They are not intended as names accepted by Klug but simply as an indication of the Jurinean genera to which the species would belong if the Jurinean genera were accepted. He stated clearly that he did not accept them himself as he thought they were based on unreliable characters, nor do his own subdivisions of the genus correspond with the Jurinean genera. Thus I agree with Ross (p. 72) in saying that *Tenthredo* (*Emphytus*) *pumila* Klug is a homonym of *Tenthredo* (*Allantus*) *pumila* Klug (cf. *Tenthredo* (*Allantus*) *dispar* Klug (p. 161 and p. 191) where the same name has clearly been accidentally used for two distinct species). Unfortunately this interpretation also invalidates *Dolerus palustris* (Klug) (*Tenthredo palustris* Klug 1818 : 229 *nec* p. 189) : for this the name *Dolerus cothurnatus* Lepeletier 1823, *Monographia Tenthredinetarum* : 231 is available. For the other names that must now be regarded as homonyms, some will not require replacing as they are no longer in use : among these is the European *Emphytus balteatus* (Klug : 219 *nec* p. 166), now considered to be only a colour form of *E. didymus* (Klug) : the nearctic *Tenthredo formosa* Norton 1864 (*nec* Klug 1818 : 135) and *T. hyalina* MacGillivray 1897 (*nec* Klug 1818 : 103) I leave to my North American friends who will probably find other available names when the nearctic species are revised.

T. deserta Enslin (*Allantus desertus* Enslin, 1910, *Rev. russ. ent.* **10** : 358) is preoccupied by *T. deserta* Klug 1818 : 232. Enslin's species was described from the male only and this may be correlated with some described female when the group is revised with more material available, but owing to the present confusion over the North African species of this genus it seems inadvisable to add to the names now. For *T. simulans* Cameron 1887 (India) *nec* Klug 1818 : 148, I propose the name **Tenthredo ebba** nom. n.

Key to the genera of the Fenusini.

1. Tarsal claws with an enlarged and acute basal lobe. [Cubital vein of fore-wing bent either at a right angle or obtusely at junction with 1st recurrent (figs. 1 and 2)] . . . . . 2.
–. Tarsal claws simple and without a basal lobe. [Cubital vein of fore-wing bent obtusely at junction with 1st recurrent (fig. 1)] . . . . . 6.
2. Head with genal carina along lateral hind margin. [In European species males not disproportionately rare] . . . . . 3.
–. Head without a genal carina. [In European species males much rarer than females] . . . . . 4.
3. Prepectus to mesopleura clearly defined; antenna with segment 3 at least one and a half times as long as 4; eyes converge strongly in front so that the distance between them in front is about as long as the longest dimension of an eye; basal portion of anal vein in fore-wing straight (fig. 3); abdomen transversely rugulose above. [Fore-wing with cubitus obtusely angled at junction with 1st recurrent; hind-wing with radial and anal cells closed. Monotypic. Europe. Type: *Tenthredo tenella* Klug] . . . . . *Parna* Benson.
–. Prepectus not defined; antenna with segment 3 scarcely longer than 4; distance between the eyes in front much greater than the longest dimension of an eye; basal portion of the anal vein in the fore-wing converges apically towards the submedian vein (fig. 4); abdomen entirely smooth and shining without wrinkles. [Fore-wing with cubitus bent at an angle of little more than 90° at junction with 1st recurrent. Two European species; ?not nearctic, see below. Type: *Tenthredo betuleti* Klug] *Scolioneura* Konow.
4. 2nd segment of antenna longer than broad; flagellum shorter, with segment 3 at least one and a half times as long as 4, but with segments from 4 onwards only slightly diminishing in length . . . . . 5.
–. 2nd segment of antenna broader than long; flagellum longer, with the segments diminishing more gradually in length, segment 3 being less than one and a half times longer than 4. [Fore-wing with cubitus obtusely bent at junction with 1st recurrent, and basal portion of anal cell straight (fig. 3); hind-wing with both radial and anal cells closed. Holarctic. 3 European species (see below). Type: *Metallus rubi* Forbes] *Metallus* Forbes (*Entodecta* Konow).
5. Hind tarsus much shorter than the tibia; basal portion of anal vein in fore-wing straight (fig. 3) and cubitus (fig. 1) obtusely bent at junction with 1st recurrent; hind-wing with radial cell and sometimes anal cell open at apex. [Two or ?more European species. Holarctic and S. American. Type: *Scolioneura canadensis* MacGillivray 1895] . *Profenusa* MacGillivray.
–. Hind tarsus as long or longer than tibia; basal portion of anal vein in fore-wing converges apically towards submedian vein (fig. 4); fore-wing with cubitus (fig. 2) angled at about 90° at junction with 1st recurrent; hind-wing with anal and generally also radial cell closed at apex. [3 to 5 European species; ?also nearctic. Type: *Tenthredo hortulana* Klug] . . . *Messa* Leach (*Fenusella* Enslin and ?*Scolioneura* (Konow) American auct.).

6. Genal carina absent; prepectus to mesopleura absent; sawsheath normal; hind tarsus shorter than tibia . . . . . 7.
–. Head with genal carina along lateral hind margin; prepectus present; sawsheath with a lateral apical projection from each valve, so that from above it appears emarginate behind; hind tarsus about equal to hind tibia. [Fore-wing with cubitus obtusely bent near base and basal portion of anal vein straight; hind-wing with radial and often anal cell open at apex. 3 European species. Type: *Fenusa excisa* Konow] . . *Hinatara* Benson.
7. Fore-wing with basal portion of anal cell closed though the surrounding vein may be only lightly pigmented (fig. 6); 1st transverse cubical entirely absent; hind-wing with radial cell closed at apex; 1st anal very short, only about one-third or one-fourth as long as the 2nd anal, and not enclosing an anal cell . . . . . 8.
–. Fore-wing with basal portion of anal vein approaching the submedian but not reaching it (fig. 5), so that there is no closed basal anal cell; 1st transverse cubital vein present; hind-wing with radial cell closed; 1st anal vein almost as long as 2nd; it converges apically towards the submedian and may enclose a large anal cell. Monotypic. Mediterranean. Type: *Syringophilus hommi* Hering. . . . . *Syringophilus* Hering.
8. Antenna 9-segmented; 3rd and 4th tarsal segments with pronounced apical projections (tarsal pulvilli) below (that on the 4th reaching back for at least one-third the length of the 5th tarsal segment (fig. 7)). Holarctic. Type: *Tenthredo pumila* Klug 1818 : 209 *nec* p. 117 = *Dolerus pusillus* Lepeletier 1823 . . . . . *Fenusa* Leach.
–. Antenna 11- to 16-segmented; tarsal segments without pronounced apical projections (tarsal pulvilli) below (fig. 8). Palaearctic. Type: *Fenella nigrita* Westwood . . *Fenella* Westwood (*Paraphyllotoma* Forsius **syn. n.**).

Scolioneura Konow.

This genus contains two known species, for although by the new definition above, *Scolioneura nana* (Klug) is transferred to *Messa*, *Fenusella tirolensis* Enslin (*fide* Conde) is transferred hither. I collected 9 ♂♂ and 5 ♀♀ of the latter in various parts of Val d'Herens, Valais, Switzerland, from 4000 to 8000 ft. They were all taken flying round *Salix*, which is probably the food-plant. The six North American species referred to this genus by Ross (1937 : 71) and others probably belong to *Messa*.

Metallus Forbes (=*Entodecta* Konow), with notes on *M. albipes* Cameron, an unrecorded British species and pest on *Rubus*.

In addition to *M. pumilus* Klug and *M. gei* Brischke there is a third British species previously mixed with the former, though recognised and described by Cameron as *Phaenusa albipes* Cameron 1875. This species was placed in *Fenusella* by Enslin (p. 306) but was not known to him personally. In Morice's collection there is a German specimen, 1 ♀, collected by Konow himself at Mecklenburg, 20.vii.1895, and determined by Konow as *Entodecta pumilus* Klug. In Britain *M. albipes* Cameron and not *M. pumilus* Klug, seems to be the common pest on cultivated *Rubus*; in the British Museum there are specimens with the following data :—Devon : Barnstable, Fremington, 2 ♀♀, bred by E. G. Hunt from mines vii.1930, on " phenomenal berry "; 1 ♀ bred by W. E. H. Hodson in 1927 from mines on " raspberry "; Dartmoor, 1 ♀, viii.1929, R. C. L. Perkins from *Rubus*; Herts : Harpenden, 2 ♀♀, vii.1930, H. F. Barnes bred from mines on " blackberry." In addition to these there

are the two females from the Cameron collection labelled " Cadder " (Lanark). Cameron (1882 : 298) says of this species " Very rare. Taken in Cadder Wilderness on 20th August on a rose bush " (*i.e.* in 1875, see Cameron 1875).

M. pumilus Klug is represented in the British Museum by 1 ♀ taken by Dr. K. G. Blair on Stanmore Common (Middlesex) and 1 ♀, without precise data, from the Cameron collection. Cameron (1882 : 298) speaks of the species as " common and generally distributed " and (1878 : 22) as " Common but rather local. Imago in May and June. Larva mines the leaves of *Rubus fruticosus* and *R. idaeus* in autumn." (Since Cameron did not know that *M. albipes* Cam. also mines leaves of *Rubus*, some of the latter records may refer to *M. albipes*.) In the Morice collection is 1 ♀ from Surrey, Pyrford, 5.vii.1908.

The third British species was first recorded as British by Perkins in 1929 (see Benson 1935). This species mines leaves of *Geum*, both wild and cultivated varieties, in gardens, where it is sometimes a pest in southern England. It is not, however, limited to southern England in Britain, as, in August 1937, I found the mines abundantly as far north as at Newcastleton, Roxburghshire, Scotland.

The females of the three species can be distinguished as follows (males unfortunately were not available for study) :—

1. Hind legs almost entirely white; hind tarsus about as long as tibia . . 2.
–. Hind legs yellow with femur broadly black at base; hind tarsus shorter than tibia (0·9 : 1). [Antenna with segment 8 only about twice as long as broad; 5th hind tarsal segment longer than 3rd; abdomen entirely black; 3·5 to 4·5 mm. Leaf-mines in *Rubus*] . . . *pumilus* (Klug).
2. Abdomen entirely black; 5th hind tarsal segment about as long as 3rd; smaller species, 2·5 to 4 mm.; antenna slenderer (segment 8 more than twice as long as broad). Leaf-mines in *Rubus*. . . . *albipes* (Cameron).
–. Abdomen brownish-piceous above, black beneath; 5th hind tarsal segment shorter than 3rd, larger species 3·5 to 4·5 mm.; antenna stouter (segment 8 only about twice as long as broad). Leaf-mines in *Geum* . *gei* (Brischke).

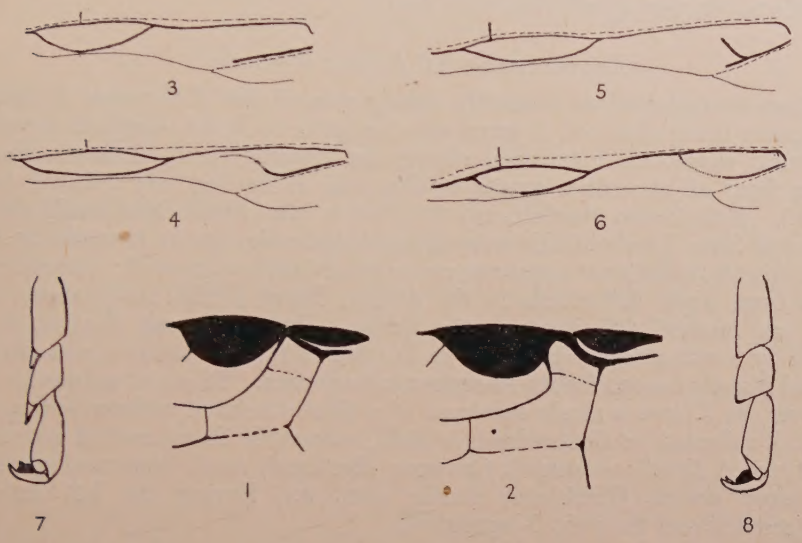
Profenusa MacGillivray, with notes on an unrecorded British species, *P. thomsoni* (Konow).

I am transferring *Messa pygmaea* Klug and *M. thomsoni* Konow to a distinct genus for the reasons given in the key to genera above and because of their very different general facies. *M. steusloffi* Konow may also belong here.

This genus I identify as *Profenusa* (MacGillivray) Ross 1937. In July 1930 Mr. A. W. Saunt, A.L.S., collected at Tile Hill, near Coventry, Warwickshire, a single female of a species which I identified as *Fenusella thomsoni* Konow from Enslin's monograph (pp. 303–6), an addition to the British fauna. I hesitated to record it at the time as the species was only named from the literature and based on a single specimen which might have proved to be abnormal. In the Perkins collection, however, I have lately found a second specimen which agrees very closely with Saunt's. These differ from *P. pygmaea* Klug thus :—

Wings uniformly infuscate; basal vein of fore-wing strongly curved; anal cell of hind-wing closed at apex; tegula generally white but may be more or less infuscate; underside of antenna black; abdomen strongly rugulose above with a sawsheath narrow and parallel-sided in dorsal view. Leaf-mines in *Quercus* . . . . . *pygmaea* Klug.

Wings darkly infuscate basally, but with subhyaline apices; basal vein of fore-wing only slightly curved; anal cell of hind-wing open at apex; tegula black; underside of antenna pale; abdomen only slightly rugulose above with a sawsheath that swells out apically in dorsal view . . *thomsoni* Konow.



FIGS. 1 and 2.—Portion of fore-wing to show angle of cubitus in *Profenusa pygmaea* Klug (fig. 1) and *Messa hortulana* Klug (fig. 2).
FIGS. 3 to 6.—Anal region of fore-wing in *Profenusa pygmaea* Klug (fig. 3), *Messa hortulana* Klug (fig. 4), *Syringophilus hommi* Hering (fig. 5) and *Fenusa ulmi* Sund. (fig. 6).
FIGS. 7 and 8.—Apical hind tarsal segments in *Fenusa ulmi* Sund. (fig. 7) and *Fenella nigrita* Westwood (fig. 8).

Messa Leach (=*Fenusella* Enslin).

By restricting this genus as defined above, the species of *Messa* are now very similar in general facies. The 6 North American species assigned to *Scolioneura* by Ross (1937 : 71) probably belong here. The European *Scolioneura nana* Klug is also transferred here despite certain differences in head sculpture and wing venation; the frontal area of the head has a distinct surrounding carina and the transmedian vein of the fore-wing is received near the base of the discoidal cell.

Of the species included in *Fenusella* by Enslin (pp. 303–7) *F. excisa* Konow, *nigripes* Konow and *recta* C. G. Thomson are now transferred to *Hinatara* Benson 1936; *F. tirolensis* Enslin is now transferred to *Scolioneura*; and there now remain in *Messa*, *M. hortulana* Klug, *glaucopis* Konow, probably *wuestneii* Konow and possibly *steusloffi* Konow.

Hinatara Benson.

In 1936 this genus was erected for *Fenusa excisa* Konow and *nigripes* Konow, and it was suggested that *F. erecta* C. G. Thomson also belonged here. In 1937 Dr. Malaise kindly sent me specimens of *F. erecta* C. G. Thomson confirming this suggestion. Malaise's specimens were taken in a park in Stockholm, where he found them flying about *Acer platinoides* L., and although

they were not actually bred, mines were found the same year on this tree and he thinks they almost certainly belonged to this species.

H. erecta (C. G. Thomson 1871) is possibly synonymous with *H. nigripes* (Konow 1907). Unfortunately I had already returned the type of *Fenusa nigripes* Konow to Berlin when I received Malaise's specimens, so that I was not able to compare specimens of the two.

Fenusa Leach and *Fenella* Westwood.

These two genera are evidently closely related, but differences in habit—the former being attached to trees and the latter to herbs—support the slight structural characters mentioned above, for keeping them distinct. *Fenella* differs from all the other genera in this tribe in having very reduced tarsal pulvilli. *Kaliofenusa* MacGillivray for *Fenusa ulmi* Sunderland could also be separated from *Fenusa* if this were thought desirable, but as it would be for a single species, it does not appear to me to be advisable at present; nevertheless, apart from slight differences in the adults, Yuasa (1922 : 96–7) shows that there are marked differences in the larvae. *Paraphyllotoma* Forsius, represented by the single species *P. judaica* Forsius 1930 (Palestine), appears to be a typical *Fenella* except for its 16-segmented antenna. It is not unique in this, however, as I have a single specimen of a closely related undescribed species which I collected in Switzerland in 1935, also with 16-segmented antennae. The type of *Fenella westwoodi* Cameron (Scotland) is an abnormal specimen of *Fenusa dohrni* (Tischbein) Enslin (**syn. n.**), having the left antenna 10-segmented and the right 9-segmented.

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,,	November	5
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,,	February	4

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